



State Wildlife Grants Annual Summary-2019

Pennsylvania Fish & Boat Commission



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Far Left: Divers searching for mussels in the Ohio River, Background: Ohio River, Left: Pocketbook (*Lampsilis ovata*), Credit: Mary Walsh, Western PA Conservancy.



March 2019

INTRODUCTION

This summary document highlights selected State Wildlife Grant projects administered by the Pennsylvania Fish & Boat Commission. Previous annual summaries are available at: [State Wildlife Grants-Program Summaries](#). Support for this document and partial funding for the Conservation Opportunity Area Tool discussed in this document is provided by a U.S. Fish and Wildlife Service, State Wildlife Grant.

Project F16AF00394. Implementing & Coordinating the 2015 Pennsylvania Wildlife Action Plan: Pennsylvania Fish & Boat Commission. Diana M. Day (Pennsylvania Fish & Boat Commission).

GUIDING CONSERVATION OF IMPERILED SPECIES AND HABITATS: 2015-2025 PENNSYLVANIA WILDLIFE ACTION PLAN

Guiding conservation in Pennsylvania

The 2015 Pennsylvania Wildlife Action Plan is a blueprint for the conservation of declining and imperiled species and their habitats. Administered by the Game Commission and Fish & Boat Commission, this plan is for use by all Pennsylvanians who care about Species of Greatest Conservation Need and their habitats.



You can help!

Chapter 4, *Take Action! Get Involved!* provides many examples of activities for people of diverse ages, skill levels, and abilities help species and their habitats. Every positive action is important!

Getting Started!

The 2015-2025 Pennsylvania Wildlife Action Plan (plan) can be found on the websites for the Fish & Boat Commission (www.fishandboat.com, Home>Resource>State Wildlife Action Plan) and Game Commission (www.pgc.pa.gov, PGC>Wildlife>Wildlife Action Plan). If you can't find what you're looking for contact: RA-FBSWAP@pa.gov.

THE CONSERVATION OPPORTUNITY AREA TOOL: ENHANCING FUNCTIONALITY OF THE PENNSYLVANIA WILDLIFE ACTION PLAN

In 2014, the Game Commission and Fish & Boat Commission assessed that advances in technology could offer users enhanced versatility and accessibility to information in the Pennsylvania Wildlife Action Plan. In intervening years, funding through U.S. Fish and Wildlife Service, State Wildlife Grants administered by the Game Commission and Fish & Boat Commission have supported work with Western Pennsylvania Conservancy and NatureServe, Inc. to develop the web-based Pennsylvania



Conservation Opportunity Area Tool. The tool is anticipated to be publicly available in late spring/early summer 2019.

Why a Conservation Opportunity Area Tool?

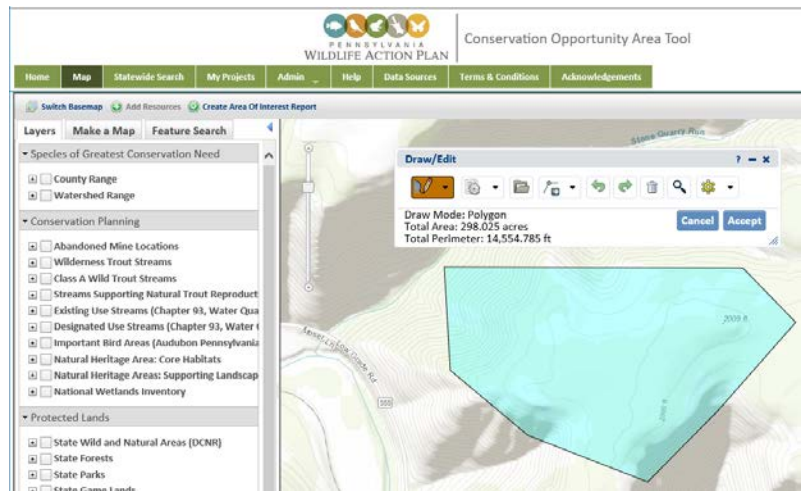
The 2015-2025 Pennsylvania Wildlife Action Plan is comprehensive, encompassing 664 Species of Greatest Conservation Need and more than 300 specific conservation actions. Yet, as a static document, the Plan does not allow for convenient access, outputs and a downscaled view of the information. Through the Conservation Opportunity Area Tool, data in the Plan are brought together and organized allowing outputs to guide decisions that could lead to implementation.

What are key features?

- An “Area of Interest” feature (Figure 1) will allow users to delineate an area of up to 2,500 acres. For this area, a report can be generated which includes summary of locational features (e.g., county, hydrologic unit), a list of Species of Greatest Conservation Need, habitats, prioritized conservation actions, research, and survey needs.
- Species range maps.
- Statewide searches by species, taxonomic group, global & state rank with tabular output (Figure 2).

Where to find the tool?

When available, agency press releases will be posted and links to the tool will be provided on the Fish and Boat Commission and Game Commission Wildlife Action Plan webpages (see “Getting Started” section above).



Search Reset Print to PDF Export as CSV

▼ Results

Your Criteria
 Taxonomic Group: Fish
 Global Rank: G3 - Vulnerable
 Search Run: 3/6/2019 9:55:56 AM

County	Common Name	Scientific Name	Global Rank	State Rank
Fish				
ALLEGHENY	Lake Sturgeon	Acipenser fulvescens	G3G4	S1
ALLEGHENY	Tippecanoe Darter	Etheostoma tippecanoe	G3G4	S3S4
ARMSTRONG	Northern Madtom	Noturus stigmosus	G3	S4

Figure 1 (above). From the Conservation Opportunity Area Tool, a sample map with a drawn Area of Interest.

Figure 2 (left). A partial output from a statewide search in the Conservation Opportunity Area Tool.

ADVANCING RECOVERY OF THE CHESAPEAKE LOGPERCH IN PENNSYLVANIA AND MARYLAND



Figure 3. Chesapeake logperch (*Percina bimaculata*) is the focus for recovery through a Competitive State Wildlife Grant. Credit: Doug Fischer

Fish and Boat Commission and Maryland Department of Natural Resources, through a nationally competitive grant process, are receiving Competitive-State Wildlife Grant funds to support recovery of the Chesapeake Logperch, *Percina bimaculata* (Haldeman) (Figure 3) to help avoid federal listing. Currently, limited in distribution to the mainstem and tributaries of the lower Susquehanna River (Figure 4), a goal of the project is to increase the range of this species from approximately 30% to about 60% of the known historic range.

APPROACH: The proposed recovery process encompasses the following major tasks:

- Conduct Chesapeake Logperch surveys for the most current distribution information.
- Survey habitats for potential suitable sites to stock Chesapeake Logperch and evaluate habitats where spawning is observed.
- Establish an artificial propagation program for stocking cultured fish.
- Move wild fish from current stocks to new areas. This will also include evaluating the outcomes.
- Develop a Chesapeake Logperch Conservation Plan (focused on recovery in Maryland).

The Chesapeake Logperch is listed as state-threatened in both states. In the 2015-2025 Pennsylvania Wildlife Action Plan, the species received a priority rank of “1” in the conservation category “contribute to the conservation of globally or regionally important species”.

Project F19AP00163. Recovery of the Chesapeake Logperch, *Percina bimaculata* (Haldeman). Pennsylvania Fish & Boat Commission and Maryland Department of Natural Resources. Doug Fischer (Pennsylvania Fish & Boat Commission), Rob Criswell, Jay Stauffer (The Pennsylvania State University) and Christopher A. Urban (Pennsylvania Fish & Boat Commission).

STATUS: This project began in February 2019 with tasks to soon be initiated. The project is expected to be completed by June 2023.

BACKGROUND: State Wildlife Action Plans were developed with an overarching purpose to keep species from becoming federally listed as threatened or endangered. To help fulfill this purpose, the Pennsylvania



Figure 4. Susquehanna River (above, background) provides habitat supporting Chesapeake logperch. Credit: Doug Fischer, Pennsylvania Fish & Boat Commission.

SEARCHING PENNSYLVANIA'S OHIO RIVER DEEPWATER HABITATS: ASSESSING MUSSEL DISTRIBUTIONS AND POPULATIONS

SUMMARY

The Ohio River mussel community is much less diverse than prior to extensive industrial pollution, but despite historical and ongoing threats to water quality and habitat, surveyors (Figure 5) have thus far encountered ten species of freshwater mussels that persist in the depths of the river.

OBJECTIVES

This project is:

- Surveying freshwater mussels in Ohio River navigational pools (Pennsylvania) (Figure 6) to assess mussel community composition, abundance and mussel-habitat relationships.
- Developing species distribution models using mussel community information, landscape, watershed, and river reach variables, to support future assessments and guide mussel management.



Figure 5. Mussel identification and data recording. Credit: Alysha Trexler, Western PA Conservancy.

APPROACH

Freshwater mussels are among the most imperiled aquatic animal groups in the United States (Stein & Flack 1997) and deepwater systems such as the Ohio River provide particularly challenging conditions for evaluating their occurrence and population status. The project sampling design uses a 2-step process. In Step 1, surveys are conducted along transects perpendicular to flow, in waters less than 30

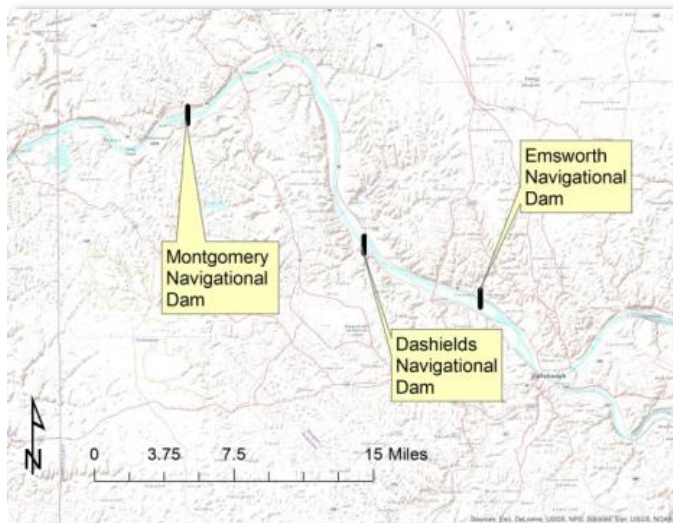


Figure 6. Study area for mussels in Ohio River Navigational Pools.

feet (9.75 meters) deep. Considerations for survey transects include river conditions including point-source pollution, locks & dams, bathymetric maps, restricted areas, tributaries and historic pollution sources. Step 1 results guide placement of additional surveys parallel to shore (i.e., Step 2 sites).

In addition to survey data, species distribution models for mussels in the Ohio River offer a vital tool to guide decisions of resource managers. For this study, Ohio River watershed mussel distribution models are based on occurrence data in the upper basin in Pennsylvania, Ohio, West Virginia, and New York and include field surveys and other

reliable sources. Models are based on species occurrences and environmental factors (e.g., landcover, geology, soils, point-source pollution) to estimate spatial distribution. Distribution models have been developed for 20 species and will be finalized in 2019.

STATUS

In 2016, 2017, and 2018, a total of 13 surveys were conducted in the Dashields, New Cumberland and Montgomery pools of the Ohio River. From these surveys, a total of ten species and 223 live individuals were collected dominated by larger river mussel species, such as **mapleleaf** (*Quadrula quadrula*), **white heelsplitter** (*Lasmigona complanata*), **threehorn wartyback** (*Obliquaria reflexa*), pink heelsplitter (*Potamalis alatus*) and black sandshell (*Ligumia recta*) (Figures 7, 8). Final surveys will occur in 2019.

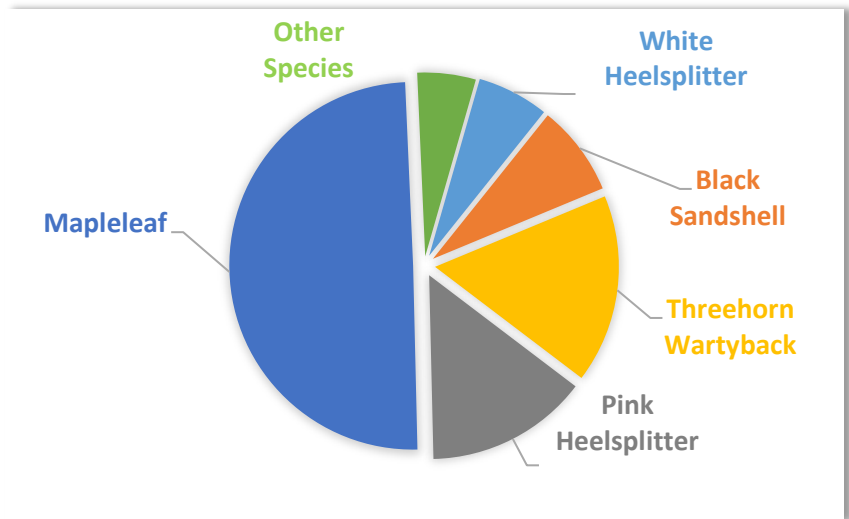


Figure 7. Distribution of 223 live mussels collected from 13 surveys in the Ohio River.



Mapleleaf
(*Quadrula quadrula*)



White heelsplitter
(*Lasmigona complanata*)



Threehorn wartyback
(*Obliquaria reflexa*)

Figure 8. Dominant mussel Species of Greatest Conservation Need collected in Ohio River Mussel surveys. Credit: Alysha Trexler, Western PA Conservancy.

REFERENCE:

Stein, B. A. and S.R. Flack. 1997. 1997 Species Report Card: The State of U.S. Plants and Animals. The Nature Conservancy. Arlington, Virginia. ISBN 1-886765-08-1

Project F15AF00413. Assessment of Freshwater Mussels in the Ohio River Watershed in Pennsylvania: A study of the Ohio River Pool Communities and Species Distributions. Mary Walsh, Nevin Welte (Western Pennsylvania Conservancy), and Robert Morgan (Pennsylvania Fish & Boat Commission).

SURVEYING THE CRAYFISHES OF WESTERN PENNSYLVANIA: FILLING CRITICAL DATA GAPS TO SUPPORT MANAGEMENT DECISIONS

SUMMARY

As of December 2018, 685 sites had been sampled in the Ohio River (515), Potomac River (117) and Lake Erie (53) Basins (Figure 9) yielding a total of 12 crayfish species (includes 2 non-native species). In 2019, more sites will be sampled in the Lake Erie Basin. Findings on the distribution and population status of western Pennsylvania crayfishes will guide species assessments and management decisions.

OBJECTIVE

This project is systematically and comprehensively surveying habitats in Western Pennsylvania for surface-dwelling crayfish species and filling data gaps for burrowing crayfishes. This information will be used to assess the health of each species in Pennsylvania (i.e., status assessment).

BACKGROUND

Crayfish serve important ecological roles yet are also increasingly imperiled and recognized by the International Union for Conservation of Nature (IUCN) as one of the most critically endangered animal groups on Earth and, in 2015, as the fourth most imperiled group of organisms (Richman et al. 2015). In Pennsylvania, establishing crayfish management priorities has been confounded by a lack of current information on species' distribution and abundance, especially in western Pennsylvania. In the 2015 Pennsylvania Wildlife Action Plan, six species were characterized as "data deficient", indicating more information is needed for a scientifically valid status assessment. Currently, only the Spinycheek Crayfish (*Faxonius limosus*) is a Species of Greatest Conservation Need in the Pennsylvania Wildlife Action Plan.

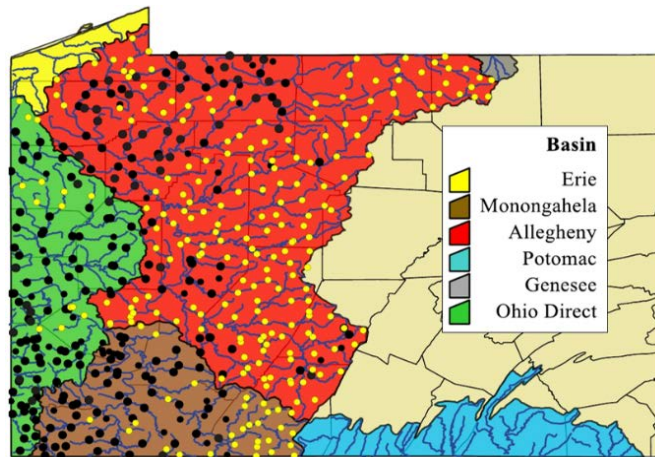


Figure 9. Yellow circles are 2018 sites sampled completed by 06.01.18 in the Ohio River basin. Black circles were sampled during prior reporting periods. Does not include sites sampled in the Potomac or Erie Basins.



Figure 10. Inspecting a seine for crayfish following sampling. Credit: Dr. Zachary Loughman, West Liberty University.

Threats: Imperilment is attributable to factors such as competition from invasive crayfishes, human development and landscape alteration.

Ecology: Among the important ecological services, crayfishes create burrows for use by other species (e.g., snakes, dragonflies and damselflies), and are prey for a wide range of predators (e.g., fishes, birds, mammals).

APPROACH

Sites surveyed by Ortmann in 1906 were highest priority for sampling and additional sites have been added to address spatial gaps and additional habitats. Stream-dwelling crayfish were captured using seines, dip nets and hand collections during baseflow conditions (Figure 10). Burrowing crayfish were collected via excavation, baited lines and nocturnal visual encounter surveys.

STATUS

As of December 31, 2018, a total of 9 surface dwelling crayfishes (including 2 non-native species) and 3 burrowing crayfish species (Table 1, Figure 11) had been collected from 685 sites in the Ohio, Potomac and Erie Basins.

Thus far, the Rock Crayfish (*Cambarus carinirostris*) has been the most widespread and dominant species in western Pennsylvania and in headwater (i.e., smaller) streams. In the Ohio River drainage, the Allegheny Crayfish (*Faxonius obscurus*) was found in all named, wadable streams that were sampled. This species is tolerant of pollution and was even collected within the Pittsburgh city limits, but was not generally found in headwater streams.

REFERENCES

Ortmann, A. E. 1906. The crawfishes of the state of Pennsylvania. *Memoirs of the Carnegie Museum* 2:343-523.
 Richman, I. N., et al. 2015. Multiple drivers of decline in the global status of freshwater crayfish (Decapod: Astacidae). *Philosophical Transactions of the Royal Society*. 370 (1,662): DOI: 10.1098/rstb.2014.0060.

Project F16AF00447: Western Pennsylvania Crayfish Inventory and Conservation Assessment. Dr. Zachary Loughman (West Liberty University), Dr. David A. Lieb (Western Pennsylvania Conservancy), Christopher A. Urban (Pennsylvania Fish & Boat Commission).

Table 1. Preliminary list of crayfish species collected in the Ohio, Potomac and Erie Basins.

SURFACE DWELLING

- Big Water Crayfish, *Cambarus robustus*¹
- Rock Crayfish, *Cambarus carinirostris*
- White River Crawfish, *Procambarus acutus*
- Appalachian Brook Crayfish, *Cambarus bartonii*
- Allegheny Crayfish, *Faxonius obscurus*
- Northern Clearwater Crayfish, *Faxonius propinquus*¹
- Calico Crayfish, *Faxonius immunitis*
- Rusty Crayfish, *Faxonius rusticus (non-native)*
- Virile Crayfish, *Faxonius virilis (non-native)*

BURROWING

- Blue Crayfish, *Cambarus monongalensis*¹
- Upland Burrowing Crayfish, *Cambarus dubius*¹
- Little Brown Mudbug, *Cambarus thomai*¹

¹Data deficient in the 2015-2025 Pennsylvania Wildlife Action Plan



Figure 11. A burrowing Blue Crayfish (*Cambarus monongalensis*), a data deficient species in the Pennsylvania Wildlife Action Plan. Credit: Dr. Zachary Loughman, West Liberty University.